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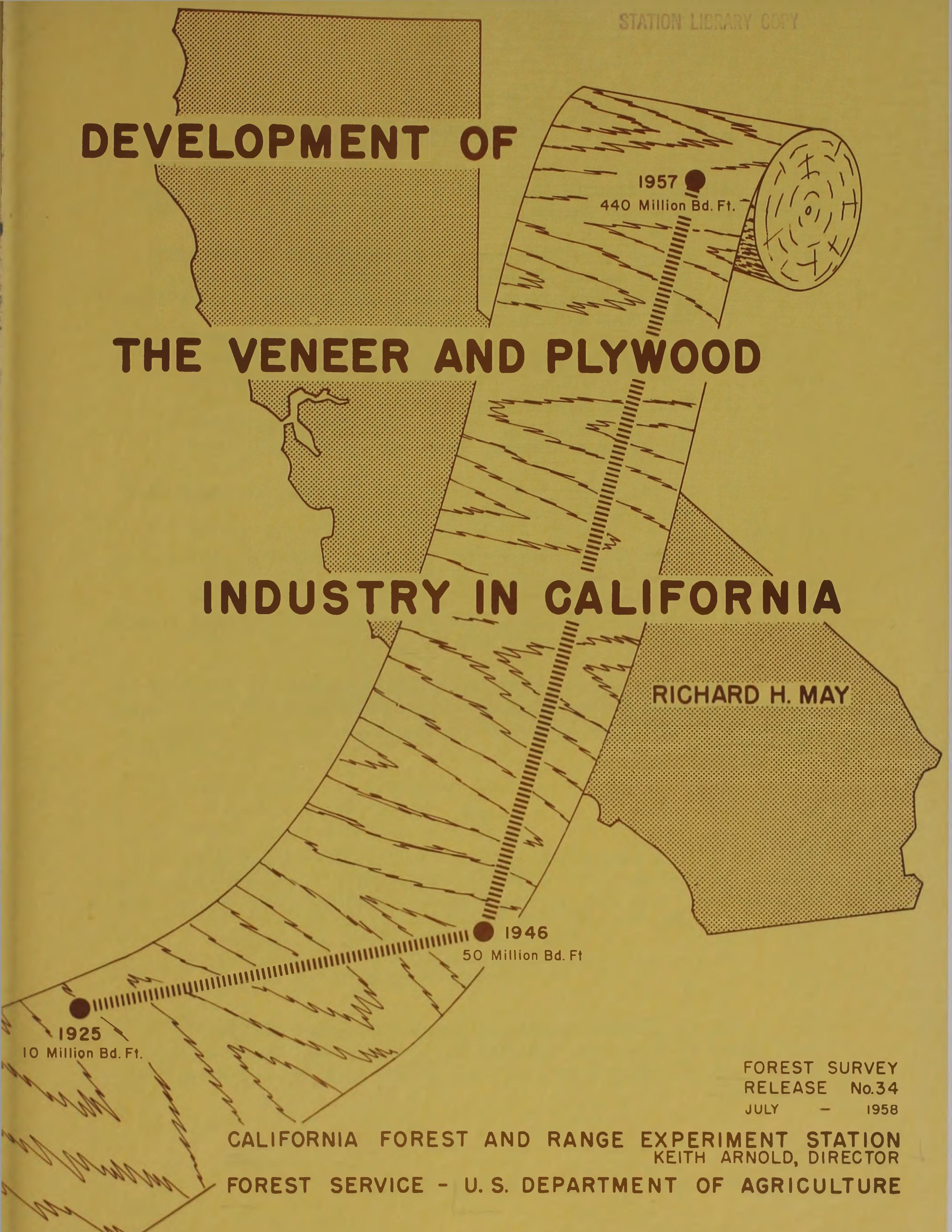
DEVELOPMENT OF THE VENEER AND PLYWOOD INDUSTRY IN CALIFORNIA



RICHARD H. MAY

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KEITH ARNOLD, DIRECTOR

FOREST SERVICE - U. S. DEPARTMENT OF AGRICULTURE

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1. Lumber trade journals, particularly The Timberman whose Annual Plywood Review (1931-1957) and whose monthly department on veneer and plywood (1925-1957) have been especially helpful.

2. Douglas Fir Plywood Association

3. U. S. Government publications of:
   (a) Bureau of the Census, Dept. of Commerce
   (b) Forest Service, Dept. of Agriculture

4. Direct inquiry, by letter, from several of the veneer and plywood companies in California.

5. Files of Emanuel Fritz, professor emeritus, University of California School of Forestry

6. Files of California Forest and Range Experiment Station, Division of Forest Economics

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Note

With the many facts, dates, and figures appearing in this report, errors may occur, despite every effort to use only authentic information. The Station would greatly appreciate having any errors reported to it.

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Agriculture--Forest Service, Berkeley, Calif.

CONTENTS

	Page
Introduction	1
The Industry Today	2
Early History of the Industry	5
Development Since 1920	7
Douglas-fir Plywood	7
Green Veneer	9
Redwood Plywood and Veneer	11
Pine Plywood and Veneer	12
Hardwood Plywood	14
Container Veneer	16

Figures

1.	Veneer and Plywood Plants in California	facing page 1
2.	Wood Consumed in the Manufacture of Veneer, California, 1925-1957	1
3.	Douglas-fir Plywood Production and Shipments, California, 1940-1957	3
4.	Veneer log production by end product, California, 1944-1956	4
5.	Veneer log production by region, California, 1944-1956	4

Tables

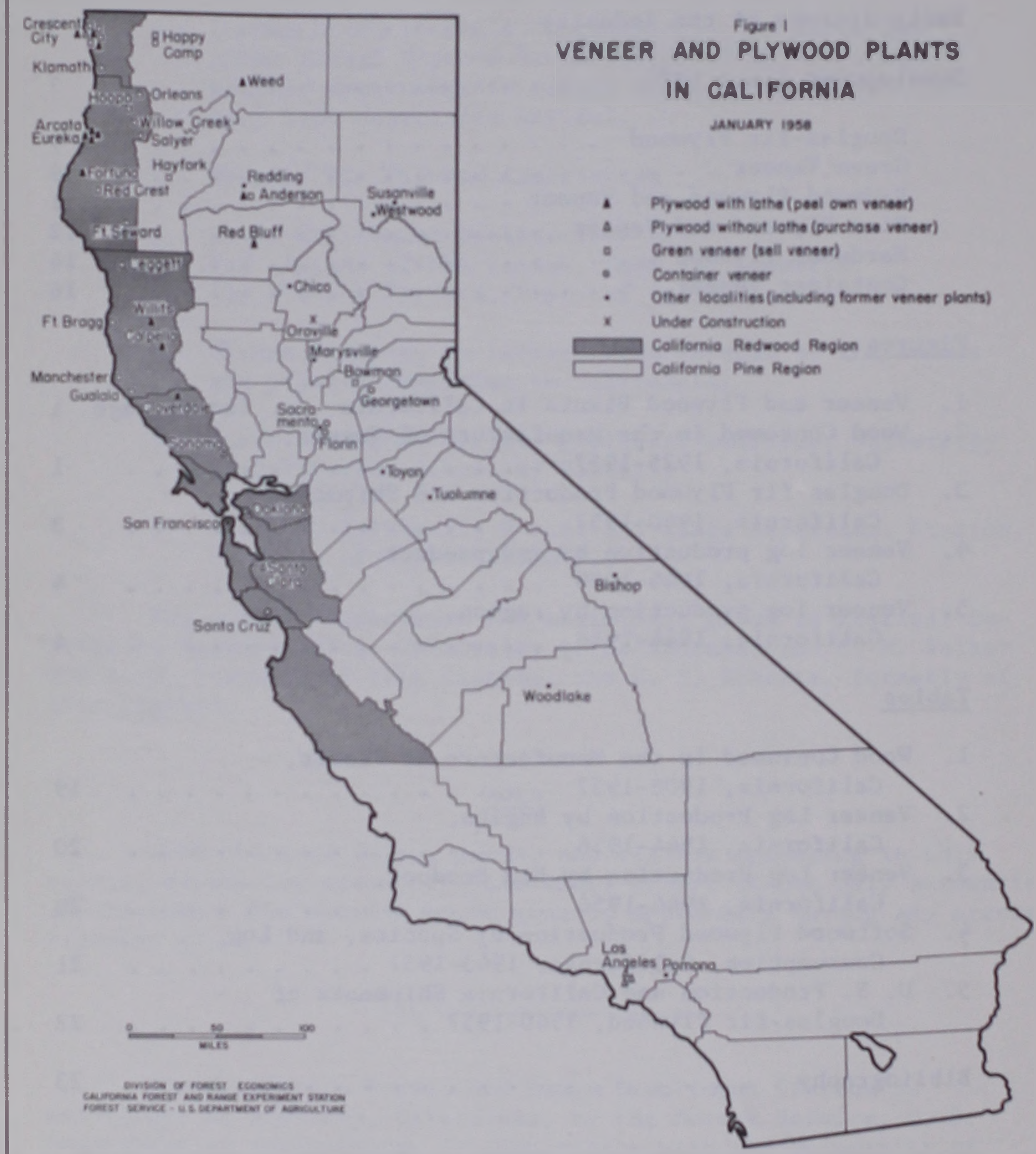
1.	Wood Consumed in the Manufacture of Veneer, California, 1908-1957	19
2.	Veneer Log Production by Region, California, 1944-1956	20
3.	Veneer Log Production by End Product, California, 1944-1956	20
4.	Softwood Plywood Production by Species, and Log Consumption, California, 1943-1957	21
5.	U. S. Production and California Shipments of Douglas-fir Plywood, 1940-1957	22

Bibliography 23

Figure 1

VENEER AND PLYWOOD PLANTS IN CALIFORNIA

JANUARY 1958



▲ Plywood with lathe (peel own veneer)

△ Plywood without lathe (purchase veneer)

▫ Green veneer (sell veneer)

● Container veneer

• Other localities (including former veneer plants)

x Under Construction

California Redwood Region

California Pine Region

DIVISION OF FOREST ECONOMICS
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
FOREST SERVICE - U.S. DEPARTMENT OF AGRICULTURE

DEVELOPMENT OF THE VENEER AND PLYWOOD INDUSTRY IN CALIFORNIA

By Richard H. May
Division of Forest Economics

The veneer and plywood industry has made tremendous strides in California since World War II. In 1946 veneer and plywood manufacture accounted for a little less than 50 million board-feet of logs, according to figures published by the U. S. Bureau of the Census. In 1957 the industry consumed approximately 440 million board-feet (fig. 2). This nine-fold increase coincided with increased output in Oregon and Washington, and was marked by the growth of the Douglas-fir segment of the plywood industry in California from nothing in 1946 to consumption of about 410 million board-feet in 1957.

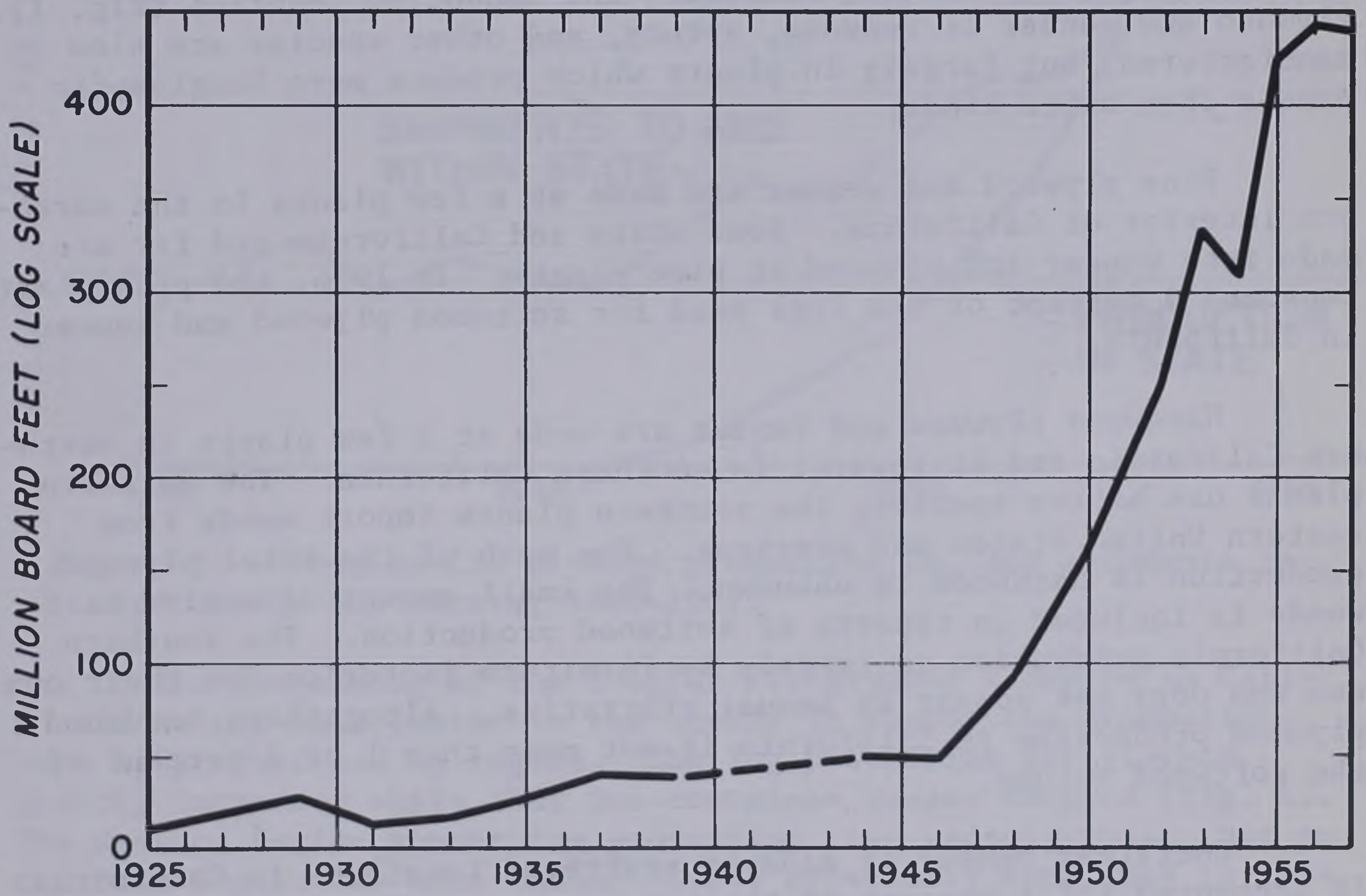


Figure 2.--Wood consumed in the manufacture of veneer (for plywood and containers), California, 1925-1957.

Because of the upsurge of this industry in recent years, many persons believe it is a postwar development in California. Actually, the Pacific Coast container veneer industry originated in this State in 1868, and plywood has been made here since 1908. The purpose of this report is to summarize the status of the industry, and to record the highlights of industrial development since the first container veneer was cut 90 years ago.

THE INDUSTRY TODAY

The veneer and plywood industry in California consists of four segments: (1) Douglas-fir plywood, (2) pine plywood, (3) hardwood plywood, and (4) container veneer. The segment to which a plant belongs depends upon its own production. Some plants have shifted segments within the past decade. The Douglas-fir segment is not coextensive with the Redwood Region, because some Pine Region plants produce all or mostly Douglas-fir plywood (see map, fig. 1, for regions).

By far the largest of the segments is the Douglas-fir. In 1956 it consumed about 90 percent of all logs used for softwood plywood and veneer in California. Douglas-fir plywood and green veneer are manufactured primarily in the north coastal part of California, particularly in Del Norte, Humboldt, and Mendocino Counties (fig. 1). Plywood and veneer of redwood, spruce, and other species are also manufactured, but largely in plants which produce more Douglas-fir panels than other kinds.

Pine plywood and veneer are made at a few plants in the northern interior of California. Some white and California red fir are made into veneer and plywood at pine plants. In 1956, the pine plants consumed 9 percent of the logs used for softwood plywood and veneer in California.

Hardwood plywood and veneer are made at a few plants in northern California and at several in southern California. The northern plants use native species; the southern plants import woods from eastern United States and overseas. How much of the total plywood production is hardwood is unknown. The small amount of native hardwoods is included in reports of softwood production. The southern California production is largely by furniture factories for their own use and does not appear in annual statistics. Altogether, hardwood plywood production in California is not more than 1 or 2 percent of the softwood volume.

Container veneer is made at scattered locations in California. It accounted for 1 percent of the logs consumed for softwood veneer and plywood in California in 1956. More plants have used pine than Douglas-fir, but most of the volume has been Douglas-fir.

Perhaps the most striking fact about the industry in the mid-1950's was that California approached self-sufficiency in volume of Douglas-fir plywood. During the war years, when the State produced no Douglas-fir plywood, somewhat more than 200 million square feet[1]/ were shipped in each year. By 1953, production amounted to 480 million square feet, and shipments to and within the State were 477 million (fig. 3). This growth--from scratch to self-sufficiency in 7 years--is all the more remarkable in view of California's heavy use of Douglas-fir plywood. From 1940 to 1957 California received almost one-seventh of all the Douglas-fir plywood in the country. Or, stated another way, shipments to and within California averaged about 14 percent of the national production of Douglas-fir plywood (table 5).

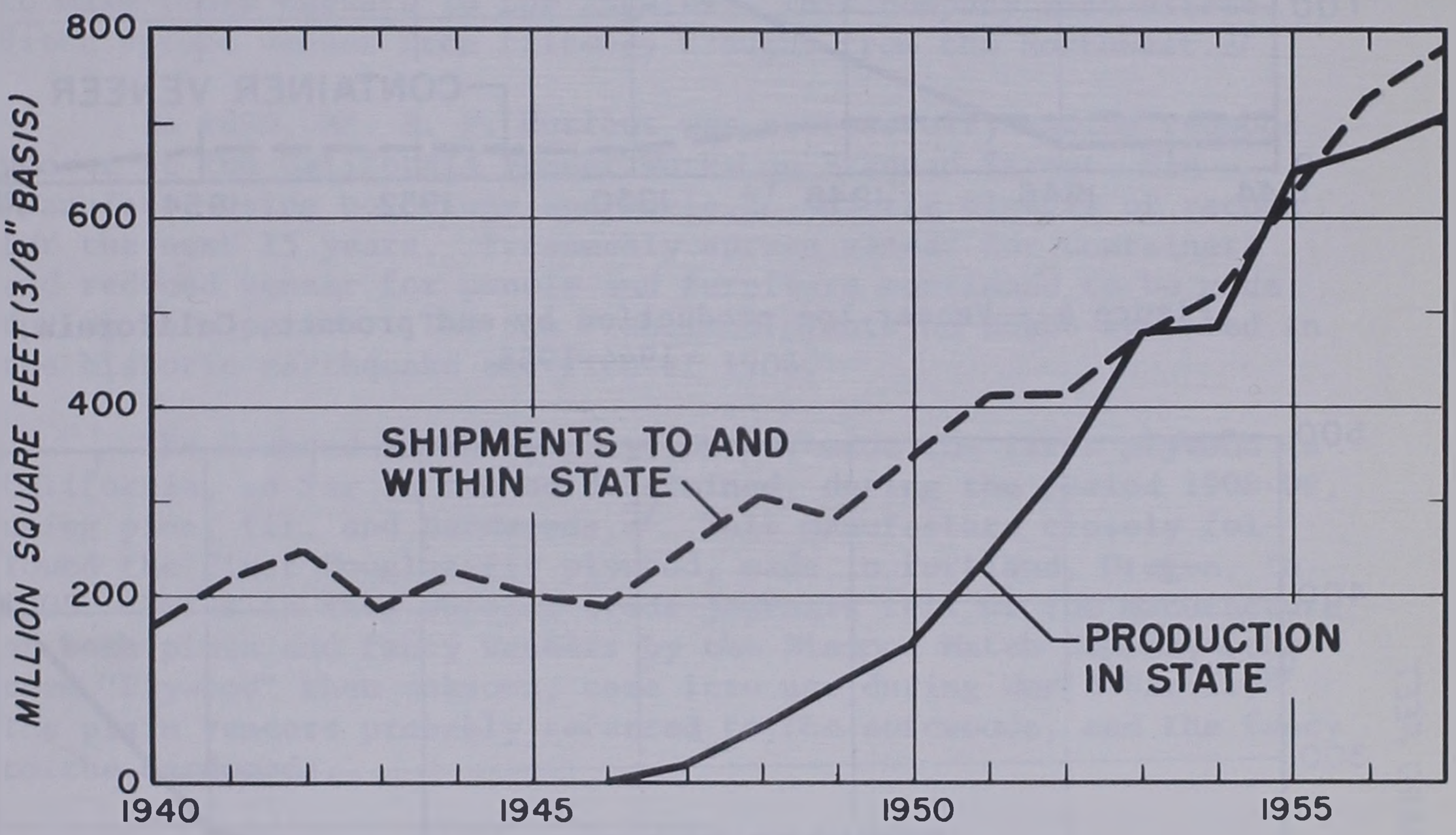


Figure 3.-- Douglas-fir plywood production in, and shipments to and within California, 1940-1957.

The burgeoning of the Douglas-fir plywood industry in California is the main factor in the trends in veneer log production, both by product and by region. The log production for plywood greatly increased while that for container veneer dropped (fig. 4). The Redwood Region veneer log production rose rapidly while that in the Pine Region has been rather stable especially from 1948 to 1954 (fig. 5).

1/ 3/8-inch basis--used for plywood measure generally and throughout this report except when otherwise stated.

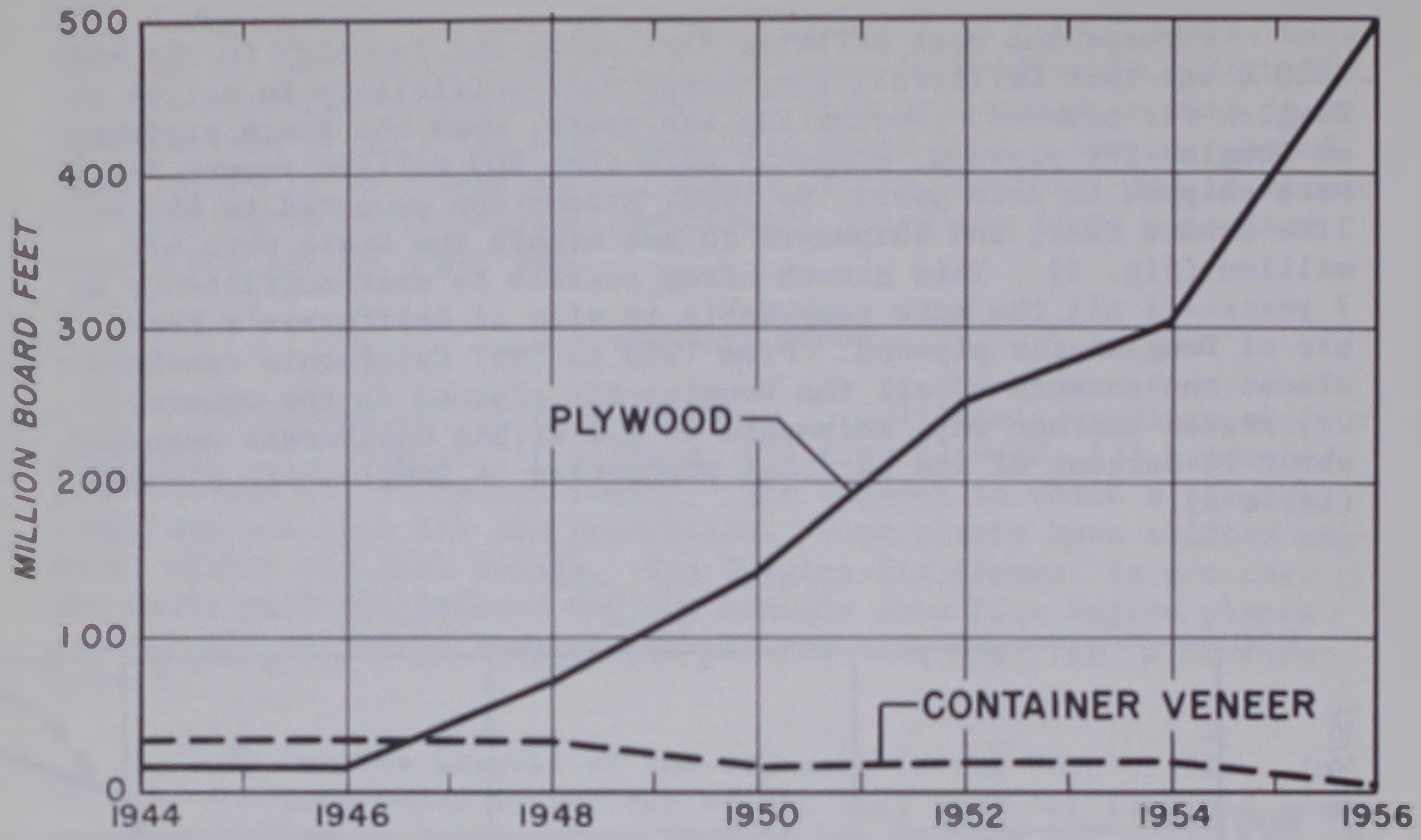


Figure 4.--Veneer log production by end product, California, 1944-1956

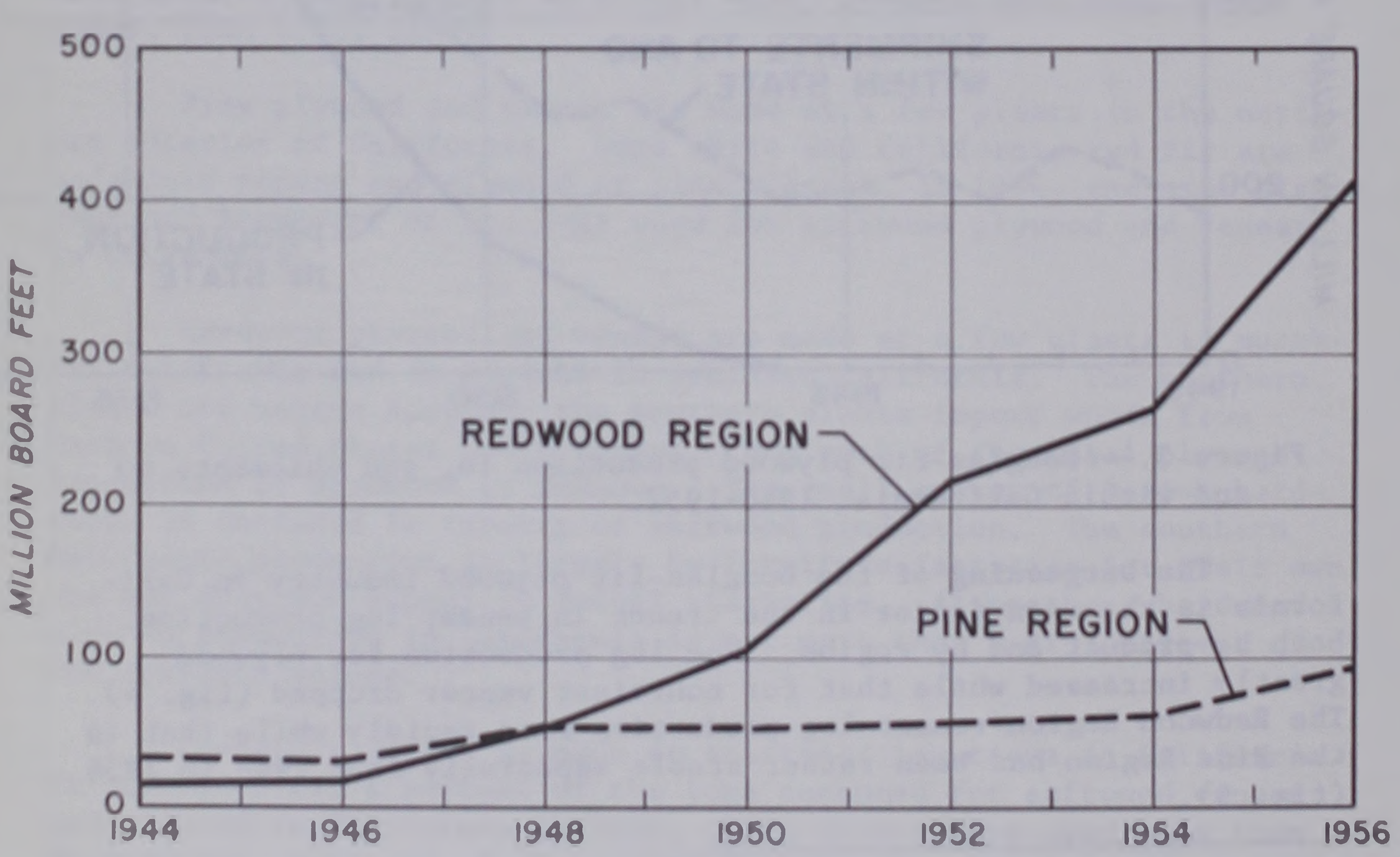


Figure 5.--Veneer log production by region, California, 1944-1956

EARLY HISTORY OF THE INDUSTRY

Veneers have been made in eastern United States since the late 18th century,[2] at first primarily for use in fine furniture. Poorer grades of veneers were used for containers in the early 19th century, but the container veneer industry really developed after invention of slicing machinery about mid-century.

The first recorded veneer production on the Pacific Coast was by C. H. Weston of San Francisco in 1868. He sliced veneer from Sitka spruce brought from the Northwest to produce metal-top veneer baskets for A. E. Allison and Company.[3]

The second veneer operation on record is that of John C. Lettelier, who about 1880 established the Los Angeles Basket Company to make fruit baskets in Los Angeles. This company also sliced Sitka spruce veneer from flitches brought from the Northwest.[3]

In 1890, Mr. R. P. Hurlbut was successfully sawing redwood veneer at The California Veneer Works on Brannan Street, San Francisco, using both logs and burls.[4] Little else is of record for the next 15 years. Presumably spruce veneer for containers and redwood veneer for panels and furniture continued to be made during this period. The San Francisco plants no doubt suffered in the historic earthquake and fire of 1906.

The Diamond Match Company, Chico, made the first plywood in California, so far as can be determined, during the period 1908-09, using pine, fir, and hardwoods.[5] This manufacture closely followed the first Douglas-fir plywood, made in Portland, Oregon, in 1905. Notes in then current trade journals tell of the manufacture of both plain and fancy veneers by the Diamond Match Company (the term "Plywood" then unknown, came into use during World War I.)[6] The plain veneers probably referred to the softwoods, and the fancy to the hardwoods.

2/ Coyne, Franklin E. 1941. American Veneer Packages. Lumber Buyers Publishing Co., Chicago.

3/ Anonymous. 1931. "Early Day Pacific Coast Veneer Plants." The Timberman, 33:2, 19.

4/ Anonymous. 1890. Redwood Veneers. Pacific Coast Wood and Iron, XIV:2:54-5.

5/ Hutchinson, W. H. 1957. The California Investment; a History of the Diamond Match Company in California. Diamond Match Co., Chico, Calif., 399 pp., mimeo.

6/ Perry, Thos. D. 1942. Modern Plywood, page 35. Pitman Publ. Co., New York.

The first figures on the volume of wood used for the manufacture of veneer in California are from the Bureau of the Census for 1909.7/ These figures were given by species, and because this is the earliest detailed record, it is presented here:

Wood Used in Veneer Manufacture, California, 1909

Species:	Volume (Thousand bd.-ft. log scale)
Sugar pine	1,192
White pine	359
Yucca	56
Spruce	42
Sycamore	15
Walnut	2
All other	50
Total	1,716

The pines made up 90 percent of the 1909 cut. The "white pine" listed was probably ponderosa pine, which was often called white pine. Pine veneers were used for containers and plywood. It seems surprising that yucca (Joshua tree) was then third in importance as a veneer wood. It was used for decorative articles, citrus tree protectors, waste-baskets, fancy screens, surgeon's splints, and corsets. Yucca is still made into veneer, but is of minor importance.

Information on the total volumes of wood used in the manufacture of veneer was also published in 1910 and 1911, but only as state totals, with no species separation given. The data indicate substantially lower production than in 1909 (table 1).

From 1912 through 1918 statistics on the veneer industry were not published by the U. S. Government. Apparently the industry was developing slowly. The Census of Manufactures report on wood used for veneer in the years 1919, 1921, and 1923 show California combined with other states. Consequently, there probably were fewer than three reporting plants in these years.

Plywood was next made in California in 1911. The Weed Lumber Company, Weed, was the pioneer in this venture--the first successful plywood manufacture in California. It manufactured pine plywood

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7/ The Bureau of the Census, U. S. Dept. of Commerce, began a record of wood used in the manufacture of veneer in 1904. California is first mentioned in the figures for 1908, where it is included with "all other states". This indicates only one or two reporting plants in that year.

panels, largely from ponderosa pine, for use in doors. The Long-Bell Lumber Company acquired the Weed Lumber Company in 1916, and has continued both the plywood and lumber operations to the present.[8] These successor companies and Red River Lumber Company, which commenced making pine plywood at Westwood in 1925, pioneered in methods which benefited not only their own operations but also others which were to follow.

DEVELOPMENT SINCE 1920

The decade 1921-30 brought increasing development in the veneer and plywood industry of California. Production of container veneer and pine plywood expanded. Hardwood plywood developed, redwood plywood was made for the first time, and California Douglas-fir plywood was manufactured experimentally.

During the depression years of the early 1930's many of the new veneer and plywood enterprises fell victim to hard times, but a few survived. Business improved in the middle 30's and with it came new veneer and plywood developments.

Plywood was a particularly useful building material for the defense and war effort of the early 1940's, and the supply was far from sufficient to meet the demand. Because of manpower and equipment shortages, however, new plants could not be constructed. When World War II was over the lid was off, and the plywood industry developed with unprecedented rapidity.

Douglas-fir Plywood

Both Douglas-fir and white fir veneer were produced, at least experimentally by Diamond Match Company, from 1908-1909.[9] There is no evidence now that plywood of these species was produced, though there may have been experimental work with them.[10]

Some Douglas-fir plywood was produced in California by the Red River Lumber Company at Westwood in the late 1920's. (A small volume of white fir plywood was also made by this company about the same time.) Production was not continued, however, and there is no further record of Douglas-fir plywood production in California until after World War II.

Then this segment of the industry boomed. Plywood men from Oregon and Washington were responsible for starting most of the new

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8/ Long-Bell merged with International Paper Co. in 1956.
9/ Reference cited, footnote 5/.
10/ Correspondence, W. H. Hutchinson to R. H. May, June 5, 1958.

plants in California. California Veneer Co. (later Crescent Plywood Corp.) at Klamath, which had been producing container veneer, converted its plant to plywood, and began producing unsanded panels in mid-1947. Humboldt Plywood Corporation, Arcata, was the first complete Douglas-fir plywood plant to go into production in California, starting late in 1947. It was purchased by Roddis Plywood Co., and in 1955 the name changed to the Humboldt Plywood Division of Roddicraft Inc.

At the beginning of 1958, 18 Douglas-fir plywood plants were operating in California and 2 pine plywood plants which also made Douglas-fir plywood. The aggregate capacity of the 18 Douglas-fir plants was about 900 million square feet annually.

California production of Douglas-fir plywood in 1956 amounted to 672 million square feet,[11/] or 13 percent of total Douglas-fir plywood production in the United States. In the same year shipments of Douglas-fir plywood to and within California amounted to 728 million square feet, or 14 percent of total U. S. production, according to Douglas Fir Plywood Association figures.

The time sequence of the development of Douglas-fir plywood plants, including those which also make pine plywood, is listed below:

1947 - California Veneer Co. (later Crescent Plywood Corp.), Klamath. Ceased operations 1957.
Humboldt Plywood Corp. (later Roddiscraft Inc.), Arcata

1948 - M & M Woodworking Co., Eureka Plywood Division (later Simpson Redwood Co.), Eureka
Calpella Plywood Co. (later Durable Fir Lumber and Plywood Co.), Calpella

1949 - Industrial Plywood Corp., Willits

1950 - Mutual Plywood Corp., Eureka (plant at Fairhaven, now the largest capacity plywood plant in California)
Sonoma Plywood Co., Sonoma (closed 1957)
Albrite Mfg. Co., (later Plywood Corp. of America), Oakland
Santa Rosa Plywood Inc., Santa Rosa (ceased operations late 1952)

11/ California's plywood production figures are not a true measure of the volume of California timber which ultimately becomes plywood, because green veneer is shipped to Oregon, and more peeler logs (primarily Douglas-fir) are shipped to Oregon than move from Oregon to California.

1951 - Long-Bell Lumber Co (later International Paper Co., Long-Bell Division), Weed (pine plywood only, 1911-1950)

1952 - California-Pacific Plywood, Inc. (later The Pacific Coast Co.), Sonoma
Paragon Plywood Corp. (later Northern California Plywood Inc.), Crescent City
Arcata Plywood Corp., Arcata (converted from green veneer which began in 1951)
Shasta Plywood Inc., Anderson (pine plywood only, 1948-51), now U. S. Plywood Corp., Shasta Plywood Division
Western Pacific Plywood Corp., Los Angeles (now Plywood Manufacturers of California, Torrance)

1954 - Lund Plywood Mfg. Co., Crescent City
Standard Veneer and Timber Co., Crescent City (converted from green veneer which began in 1951)
Tri State Plywood Co., Santa Clara

1955 - Durable Plywood Co., Arcata (converted from green veneer which began in 1951)
Fortuna Plywood Co., Fortuna

1956 - West Coast Separator Co., Los Angeles (converted from battery separator manufacture)
Interstate Container Corp., Red Bluff (pine as well as Douglas-fir)

1957 - Cloverdale Plywood Co., Cloverdale (converted from green veneer and name changed from Sonoma Plywood)

Green Veneer

Green veneer plants are the latest development in the veneer and plywood industry. They peel veneer which is usually shipped green to plywood plants, particularly those without lathes, for drying and laying up in plywood panels. Since most of these plants peel only Douglas-fir, they really constitute a part of the Douglas-fir plywood industry.

The first green veneer plant in California began operations in 1948. Two years later two more became established. In the next 7 years, 24 additional plants were established to peel green Douglas-fir veneer, and one pine veneer plant was converted to Douglas-fir. However, 5 of the green veneer plants have added plywood presses, 1 has been converted entirely to hardwood veneer, and 3 have ceased operation. Consequently, at the beginning of 1958 there were 19 operating green Douglas-fir veneer plants.

The Anderson Veneer Company constructed the only plant in California to produce primarily green pine veneer, commencing operation late in 1951 near Anderson. This company shipped its veneer to a pine plywood plant at Klamath Falls, Oregon. Both plants soon became affiliated with Kalpine Plywood Co. Kalpine peeled some Douglas-fir and white fir veneer at Anderson, as well as pine, with the fir sometimes exceeding the pine in volume. However, in 1955, U. S. Plywood Corporation purchased the Anderson plant and converted it entirely to a Douglas-fir operation.

From 1956 to 1958 four Douglas-fir green veneer plants were listed as devoting part of their production to pine:

Conifer Wood Products, Auburn
Pat Veneer Co., Salyer
West Coast Veneer Co., Crescent City
Willamette Builders Supply Co., Happy Camp

The capacity of 19 Douglas-fir green veneer plants in January 1958, as listed by The Lumberman, aggregated 660 million square feet, 3/8-inch basis. Some green veneer from these plants, in excess of California's requirements, is shipped to Oregon plywood plants.

The California green veneer plants, by the years when they began operation, are as follows:

1948 - West Coast Veneer Co., Crescent City

1950 - Hedburg Lumber Co., Fortuna (later Fortuna Veneer Co., converted to plywood 1956)
Humboldt Veneer Co., Eureka (sliced cants into edge grain veneer; ceased operation in 1954)

1951 - Anderson Veneer Co., Anderson (pine only; later Kalpine Plywood Co., some Douglas-fir veneer; in 1955 U. S. Plywood Corp., entirely Douglas-fir veneer; closed temporarily in 1957-8)
Arcata Plywood Corp., Arcata (converted to plywood in 1952)
Del Norte Veneer Co., Crescent City (later Cal-Ore Veneer, Inc.)
Durable Plywood Co., Arcata (converted to plywood in 1955)
Pacific Laminates, Leggett (later The Pacific Coast Co.)
Pacific Veneers, Crescent City (later Medford Veneer and Plywood Corp.)
Standard Veneer and Timber Co., Crescent City (converted to plywood in 1954)
Yreka Veneer Co., Happy Camp

1952 - Simpson Logging Co., Klamath (later Simpson Redwood Co.)

1953 - Humboldt Plywood Co.--portable green veneer plant (operates in woods on salvage logs)
Van Worth Lumber and Veneer Co., Honeydew (burned 1955)

1954 - Willamette Builders Supply Co., Happy Camp
Sonoma Plywood Co., Cloverdale (converted to plywood 1957)
Rochlin Veneer and Plywood Co., Willow Creek
Timberline Inc., Crescent City (converted to hardwoods, 1955)

1955 - Orleans Veneer and Lumber Co., Orleans
Pat Veneer Co., Salyer
Siskiyou Hardwoods Corp. (later Siskiyou Plywood Co.), Red Crest
Union Lumber Co., Ft. Bragg

1956 - Canyon Veneer, Inc., Manchester
Ft. Seward Mill & Veneer Co., Ft. Seward
Gualala Veneer Co., Gualala

1957 - Conifer Wood Products, Bowman
Hoopa Veneer Co., Hoopa
Trinity Alps Lumber Co., Hayfork

Redwood Plywood and Veneer

Although redwood burls have long been cut for fancy veneer, the earliest record of redwood being cut into veneer for plywood came shortly after World War I. At that time Hammond Lumber Company, at Samoa, experimented with cutting veneer from redwood, but soon gave up the attempt. In 1925, the Union Lumber Company of Fort Bragg made a shipment of redwood logs to Washington, for experimental peeling of veneer and pressing into plywood panels.

The first plywood plant designed for making redwood plywood was constructed in Martinez, California, in 1925-26, by Plywood Products Co. Production late in 1926 amounted to 100,000 square feet, and for the year 1927 was 500,000 square feet. In 1927, this company was reorganized as Western Plywood Co. No production record is available for 1928, but in 1929 a possible peak volume of 2.8 million square feet, surface measure, was produced, according to figures published in The Timberman. Production declined to 1.2 million square feet in 1930 and was even less in 1931. The company ceased operation in 1932.

Some redwood plywood was made by Harbor Plywood Co., in Washington in the late 1930's, from California logs. At first, in 1936-37, experimentally, but by 1938 a small stock was available for sale. This plywood was mostly redwood face with Douglas-fir core and cross-bands. In 1940, 1.2 million square feet were produced. Concentration on defense effort and war production, however, put an end to this trial manufacture.

After World War II, production of redwood plywood in California was resumed, and succeeded as never before. By 1955 about 25 million square feet was produced annually.12/ The volume has since declined. Redwood plywood is now essentially a sideline of the Douglas-fir plywood industry in California.

The chronology of redwood plywood plants follows:

1926 - Plywood Products Co. (later Western Plywood Co.), Martinez (discontinued 1932)

1948 - M & M Woodworking Co., Eureka Plywood Division (now Simpson Redwood Co.), Eureka (the largest producer of redwood plywood)

1950 - Mutual Plywood Co., Fairhaven (discontinued redwood plywood in 1955)

1954 - Lund Plywood and Mfg. Co., Crescent City (discontinued redwood, 1956)

1955 - Northern California Plywood Inc., Crescent City (suspended redwood in 1957)

Humboldt Veneer Company in Eureka sliced a small volume of redwood veneer from 1950 to 1954. Since then, West Coast Veneer Company, Crescent City has peeled some redwood veneer, and Timberline, Inc., also of Crescent City, has sliced some redwood veneer.

Pine Plywood and Veneer

The first pine plywood in California was made in 1908, by the Diamond Match Company at Chico, where it had installed equipment in the old Sierra Lumber Company buildings. Trouble with the glueing process and financial difficulties forced discontinuance in 1909.13/

12/ Some of the 25 million square feet of redwood plywood produced in 1955 may not have been produced in California, since one redwood plywood plant was listed for Oregon. (The Timberman, LVII:3, Jan. 1956.)

13/ Ref. cited footnote 5/.

The first successful pine plywood in California was made in 1911 by the Weed Lumber Company at Weed. Most of their early plywood was consumed in that company's door factory. In 1925 the Red River Lumber Company began a pine plywood operation at Westwood. The Weed and Westwood plants were the first two successful pine plywood operations in the West, as well as in California. The Westwood plant soon was producing panels for sale as well as for its door factory. Most of the plywood was made from ponderosa pine; small amounts from sugar pine. Red River began making knotty pine plywood experimentally in 1928, and later developed commercial production.

The Timberman reported the following volumes of pine plywood, all produced in the two California plants, for the years 1924-1930 inclusive:

Year:	Volume Million square feet (3-ply basis)	
1924	5.3	
1925	17.0	(Increase marks beginning of production at Westwood)
1926	28.5	
1927	26.0	
1928	28.9	
1929	28.2	
1930	22.5	

The drop in production in 1930 was undoubtedly due to the depression. This downward trend probably continued in 1931-32, but plywood production figures are not available for those years. Production began to increase in 1933 under the stimulus of government relief programs. In December 1933, The Timberman's first plywood directory listed Red River with a capacity of 30 million square feet per year, and Long-Bell with a capacity of 5 million. By the end of the decade both plants were near capacity operation.

Spurred by World War II, California's two pine plywood plants doubled their combined annual capacity, from 35 to 70 million square feet, between 1939 and 1943. In 1944, Fruit Growers Supply Company purchased the Westwood plant of Red River Lumber Company, and continued its operation. Long-Bell Lumber Company further increased its plywood plant capacity soon after the War, and Fruit Growers decreased its production, until each was rated at 30 million square feet per year.

Since then new plants have entered the scene and some plants have stopped producing pine plywood. The net result has been a 50

percent increase in capacity since 1946. By 1958, the 2 plants making pine plywood in California had a total capacity of 90 million square feet. U. S. Plywood Corporation has produced white fir and Douglas-fir plywood as well as pine; and International Paper Co., Long-Bell Division, makes Douglas-fir plywood in addition to the pine. Interstate Container Corporation, formerly listed as producing both pine and fir, at the beginning of 1958 was apparently only a fir producer.

The plants which have made pine plywood are listed below, by year when each commenced. Included is one primarily Douglas-fir plywood plant which has made small amounts of pine plywood.

1908 - Diamond Match Co., Chico (ceased operation 1909)

1911 - Weed Lumber Co. (later Long-Bell Lumber Co.; still later, International Paper Co.), Weed

1925 - Red River Lumber Co. (later Fruit Growers Supply Co.), Westwood (ceased plywood operation late 1953)

1948 - Calaveras Forest Products Corp., Toyon (converted from container veneer in 1948; ceased plywood operation late 1952)

1948 - Shasta Plywood Corp. (later U. S. Plywood Corp.), Anderson (the largest of California's pine plywood plants)

1952 - Durable Plywood Co., Calpella (primarily Douglas-fir, ceased pine plywood, 1954)

1955 - Interstate Container Corp., Red Bluff (suspended pine in 1957)

The distinction between the pine and Douglas-fir segments of the California plywood industry has been breaking down since 1950. The pine plants have been making more fir plywood or veneer, and several fir plants have made pine plywood or veneer.

Hardwood Plywood

Although Diamond Match Company cut hardwood veneer and possibly made hardwood plywood at Chico in the period 1908-1909,[14/] the successful production of hardwood plywood in California did not come until 1924. Then production on a commercial scale started in Los Angeles at two plants: Southern California Hardwood and Manufacturing Company, and Pacific Wood Products Company. The plywood from these plants was supplied largely to local furniture factories.

14/ Ref. cited footnote 5/.

Precisely how hardwood production developed after 1924 cannot be easily determined. More study of trade and technical journals and other sources will be needed to list the exact dates of production, but it is possible to describe developments in general and document some important dates.

During the late 1920's Cadwallader-Gibson Company had the largest exclusively plywood plant in Los Angeles. This firm had its own sawmill in the Philippine Islands, and cut and shipped cants to California. It made primarily Philippine mahogany plywood on Douglas-fir cores. The fir for the cores for this and most other California-made hardwood plywood came from Northwest mills. Several southern California furniture companies made plywood to supply their own operations.

Manufacture of hardwood plywood reached a peak in southern California about 1929-30, then there was a contraction in the early 1930's, and some firms failed. By 1937, however, the industry had rebounded to such an extent that 20 companies were making hardwood plywood, all but one--the pioneer Pacific Wood Products Company--as divisions of furniture factories. Hardwoods were imported from eastern United States, South America, Africa, Asia, and Australia.

Conklin Brothers, in San Francisco, custom-sawed veneer for furniture and panelling from imported hardwoods in the 1920's and early 1930's. Red River Lumber Company made local black oak into plywood for use in the Westwood School in 1927. A few years later this company made hardwood faced panels--largely walnut from the East--on pine core stock. Western Plywoods at Martinez made hardwood panels on redwood cores about 1930-31.

In 1946 the Forest Service, with the cooperation of the California Division of Forestry and several lumber companies, started research on California hardwoods. The Experiment Station shipped logs of tanoak, chinkapin, madrone, and California laurel to the U. S. Forest Products Laboratory at Madison, Wisconsin, for veneering. The Laboratory tests showed that with proper treatment a satisfactory product could be manufactured. Shortly afterward, similar experiments were conducted with California black oak with good results.

Since then several firms have worked with local hardwoods. The West Coast Veneer Company, of Crescent City, produced California laurel and red alder veneer about 1948. The California Cover Company was experimenting with black oak veneer at its Marysville plant in 1954. In 1954 and 1955 Lund Plywood and Manufacturing Company made hardwood plywood, and Timberline Inc. sliced hardwood veneer, both firms being near Crescent City.

In 1951, the Los Angeles area had 9 firms making hardwood plywood, 5 of these exclusively for their own use in furniture manufacture, and 4 for sale as well. These 4 were: Faulco Industries, General Veneer Mfg. Co., S. Karpen and Bros., and Zero Plywood Co. The veneers used mostly came from the East or were imported from abroad. Veneer from the Joshua tree, termed "Accuya", was being made into panels for interior trim in southern California in 1954.

In 1956, Lund Plywood and Manufacturing Company, at Crescent City, and Plywood Manufactures of California, at Torrance, were producing hardwood plywood for the general market. General Veneer Manufacturing Company, at South Gate, produced hardwood plywood primarily for furniture manufacturers; and several southern California furniture companies were producing plywood for their own use.

Container Veneer

The oldest segment of the industry in California started by producing veneer for fruit baskets. The pioneer San Francisco firm of A. F. Allison and Company can trace its history from 1868 to the present. In the course of business it became Weston Basket and Barrel Company. Late in 1954 it was an assembly plant and sales organization of the Pacific States Box and Basket Company. The pioneer Los Angeles Basket Company is also a division of Pacific States Box and Basket Company, and late in 1954 was still slicing Sitka spruce veneer from Northwest cants.

Other container veneer plants probably operated intermittently after the pioneer firms until 1920, but information is not readily available for this period. Little was found to identify the concerns or to indicate the volumes cut. An intensive search of box and container articles in lumber trade journals for the period would probably bring additional facts to light.

In the 1920's several container veneer plants were operating. The Long-Bell Lumber Company and the Red River Lumber Company each used lower grade veneers, unsuitable for plywood, in making fruit package covers. The H. B. Thornton plant commenced operation on the Berkeley waterfront in 1922, making veneer from Douglas-fir and grand fir bolts shipped from Fort Bragg. Thornton subsequently moved to Russian Gulch in Mendocino County, and in the late 1920's to Fortuna, at each place producing veneer for containers. In 1934 he moved to Sacramento, where he pioneered the use of second-growth pine for container veneer. The plant operated there for 18 years, closing shortly after Mr. Thornton's death in 1952.

Two other companies active in northern California in the late 1920's were the Universal Veneer Products Company of Fort Bragg,

which made berry basket stock from white fir and spruce, and the Northern Basket Company, of Red Bluff, which made veneer from digger pine in part, and assembled fruit and berry baskets.

The Western Wire-bound Box Company began operations in 1927 in Oakland, using resawed lumber stock. In 1929, it moved to San Francisco, and began using Douglas-fir veneer. It was then the only wire-bound box factory on the Pacific Coast. The California Barrel Company, at Arcata, commenced the manufacture of wire-bound containers in 1930. Production increased the next 10 years and was sustained during World War II, when the California Barrel Company was the largest, and perhaps the only, producer of wire-bound boxes in the State. California Barrel started production of paper-covered veneer in 1955. Early in 1956 it was purchased by Roddiscraft, Inc., production ceased, and the plant was dismantled.

The Redding Veneer and Box Company started container veneer manufacture at Redding in 1935, and was active in this field, using ponderosa and digger pines, until 1956, when it started converting to green veneer. Market conditions apparently prevented its going into operation in 1957.

Several container veneer plants were established in the 1940's, as follows:

1942 - California Veneer Co., Klamath (converted to plywood, 1947)
California Cover Co., Bishop[15/]

[16/]1943 - Calaveras Forest Products Corp., Toyon (converted to plywood, 1948; reconverted to paper covered veneer, 1953; discontinued in 1956)
Pine Veneer Co., Florin
Albers Mill and Cover Co., Soulsbyville (discontinued by 1946)
Eldorado Veneer Products Co., Georgetown

1944 - Fruit Growers Supply Co., Susanville (discontinued in 1949)

1945 - Veneer Shook Mill, Tuolumne (discontinued late 1955)

15/ This mill subsequently moved to Pomona where it was operated as Pomona Timber Products Co., and later to Woodlake where it was operated by Bakersfield Box Co. for a short period (discontinued before 1950).

16/ Exact year of starting for some of these 4 not known for certain by writer.

1946 - Coast Drum and Box Co., Santa Cruz
Sierra Forest Products Co., Sacramento

1947 - California Cover Co., Marysville[17/]
(Burned in 1952, by 1954 had rebuilt and was peeling oak experimentally for use as floor squares, discontinued 1955)

A new development in California in the 1950's was the manufacture of wood veneer overlaid by kraft paper, for a container material; several companies started work on this product:

1953 - Calaveras Forest Products Corp., Toyon (discontinued 1956)

1954 - Fruit Growers Supply Co., Westwood (discontinued in 1955)

1955 - California Barrel Co., Arcata (discontinued 1956)
Interstate Container Corp., Red Bluff (discontinued 1956)
Ply-Board Inc., Healdsburg (not known to be operating in 1956)

In 1956, 8 container veneer operations were active in California. Three in the Redwood Region used primarily Douglas-fir, including some paper overlay. Of 5 in the Pine Region, 3 made pine veneer only, and 2 made a paper overlaid veneer with pine or fir core. The 3 million board-feet consumption of logs for container veneer for 1956 represents a considerable drop from the almost 20 million board-feet level maintained from 1950 to 1955, and the drop is due primarily to the closing of the California Barrel Co. Douglas-fir made up about half of the 1956 volume; the rest was ponderosa pine and other species.

17/ If there is any connection with the California Cover Co. at Bishop in 1942, it is unknown to the writer.

Table 1.- Wood consumed in the manufacture of veneer,[1/] California, specified years, 1908-57

Year	Volume log scale
	Million bd.-ft.
1908	(2/)
09	1.7
10	0.2
11	0.4
1919	(2/)
21	(2/)
23	(2/)
25	10
27	18
29	29
1931	14
33	17
35	27
37	40
39	39
1944	49
46	48
48	92
50	160
52	251
1953	334
54	3/ 309
55	425
56	443
57	3/ 440

1/ Veneer for plywood and containers.

2/ Combined with other states in census publication.

3/ Estimated by writer.

Source: U. S. Bureau of the Census and U.S. Forest Service. (Years given are those for which figures are available.)

Table 2.- Veneer log production by region, California, 1944-1956

Year	Pine Region: Volume	Pine Region: Active plants 1/	Redwood Region: Volume	Redwood Region: Active plants 1/	Total: Volume	Total: Active plants 1/
	Million bd.-ft.	Number	Million bd.-ft.	Number	Million bd.-ft.	Number
1944	34	10	15	2/ 2	49	12
1946	32	11	16	3	48	14
1948	52	11	51	8	3/ 103	19
1950	53	10	107	11	160	21
1952	57	13	216	18	3/ 273	31
4/ 1954	60	11	264	20	3/ 324	31
1956	90	9	410	28	5/ 500	37

1/ Plants in California receiving veneer logs.

2/ Permission to publish these figures has been granted by the producers.

3/ Higher than figures in Table 1 because of exports to other states or build-up of stocks of logs held over until following year.

4/ Estimated.

5/ Revised.

Source: California Forest and Range Experiment Station, U.S. Forest Service, Department of Agriculture.

Table 3.- Veneer log production by end product, California, 1944-1956

Year	Plywood: Volume	Plywood: Active plants 1/	Container Veneer: Volume	Container Veneer: Active plants 1/	Total: Volume	Total: Active plants 1/
	Million bd.-ft.	Number	Million bd.-ft.	Number	Million bd.-ft.	Number
1944	16	2/ 2	33	10	49	12
1946	15	2/ 2	33	12	48	14
1948	71	10	32	9	3/ 103	19
1950	142	13	18	8	160	21
1952	253	22	20	9	3/ 273	31
4/ 1954	304	23	20	8	3/ 324	31
1956	5/ 497	31	3	6	5/ 500	37

1/ Plants in California receiving veneer logs.

2/ Permission to publish these figures has been granted by the producers.

3/ Higher than figures in Table 1 because of exports to other states or build-up of stocks of logs held over.

4/ Estimated.

5/ Revised.

Source: California Forest and Range Experiment Station, U. S. Forest Service, Department of Agriculture.

Table 4.- Softwood plywood production by species, and log consumption for plywood and green veneer, California, 1943-1957

Year	Plywood production: Plants	Total	Douglas-fir	Pine and other[1]	Log consumption
	Number	Million sq. ft. (3/8 in. basis)			Million bd.-ft.
1943	[2] 2	35	0	35	17
44	[2] 2	33	0	33	16
45	[2] 2	22	0	22	11
46	[2] 2	31	0	31	15
47	4	76	20	56	36
48	7	126	60	66	60
49	9	163	104	99	[3] 75
1950	13	292	175	117	[3] 142
51	13	365	242	123	[3] 196
52	16	417	345	72	[3] 231
53	16	567	480	87	314
54	18	541	484	57	[4] 289
55	21	716	644	72	405
56	21	725	672	53	430
57	21	760	704	56	431

1/ Other species include true firs and redwood.

2/ Permission to publish these figures has been granted by the producers.

3/ Includes estimates for green veneer plants for years 1949-52 inclusive. The green veneer figures are based on information obtained by the California Forest & Range Experiment Station, because they were not included in Census data for those years.

4/ Estimated.

Source: U. S. Census Bureau and U. S. Forest Service.

Table 5.- U. S. production and California shipments of Douglas-fir plywood, 1940-1957

Year	U.S. production	Shipments to and within California	California shipments as percent of U. S. production
	Million sq. ft., 3/8 in. basis		
1940	1,200	167	13.9
41	1,620	216	13.3
42	1,782	249	14.0
43	1,430	186	13.0
44	1,440	225	15.6
45	1,200	202	16.8
46	1,395	192	13.7
47	1,630	240	14.7
48	1,871	302	16.1
49	1,899	284	14.9
50	2,554	349	13.7
51	2,867	411	14.3
52	3,050	414	13.6
53	3,670	477	13.0
54	3,904	518	13.3
55	5,075	--	--
56	5,240	728	13.9
57	5,460	776	14.2

Source: Douglas Fir Plywood Association.

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